Human Resource Management and Performance in European Firms

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Abstract

We develop a theoretical framework to examine three hypotheses on the relationship between HRM practices and organisational performance in European firms. The first is that collaborative forms of HRM practice are more strongly associated with superior firm performance than calculative forms. The second is that these associations are strongest where national institutional and normative settings support them. The third is that employer-employee consultative committees and collective payment methods are also associated with superior firm performance. The first two propositions are strongly empirically supported, as is the third albeit more weakly. The implications of the findings for European policy and Varieties of Capitalism theory are discussed.

Key words: HRM practices, labour extraction function, firm performance, institutions, European social model, Varieties of Capitalism.

JEL classification: D02, D23, J24, J33, J50

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1 Introduction

This paper tests how far collaborative types of human resource management (HRM) practices, including group-based forms, are associated with improved firm performance in European countries. Many previous studies have attempted to establish a link between HRM practices and profitability, but these have been criticised for omitting employee relations variables (Wright and Haggerty, 2005). We examine two types of HRM practices, characterised by their approaches to employer-employee relations as defined by Gooderham et al. (1999) to establish how effective each type is in enhancing organisational performance in different national contexts. These two forms - 'collaborative' and 'calculative' HRM - are essentially defined by the degree to which employee involvement and participation are emphasised. We augment the analysis of collaborative practices with other indicators that explicitly consider the role of group practices and employee consultative committees.

We theoretically elaborate and empirically test the proposition that collaborative forms of HRM practice are more likely to enhance the labour extraction process and firm performance than calculative alternatives. For the empirical analysis we use Cranet, a large cross-country dataset providing HRM information at firm level. Our focus is on European firms and our findings strongly support the proposition that in those countries where the institutional setting is most conducive, collaborative organisational level practices enhance the labour extraction process and lead to superior firm performance. Calculative practices have a weaker impact on the labour extraction function and firm performance.

The paper is organised as follows. In the next section 2, we review literature on the link between HRM practices and firm performance and develop a theoretical framework to analyse relationships in different national institutional environments. In our theoretical

framework we combine an institutional approach with the neoclassical notion of the labour extraction function, which we use as an analytical tool. We also derive hypotheses for relationships between HRM practices and institutional settings. In section 3, we describe the data used and the scaling procedures employed in order to create measures of HRM practice and performance. We then test our propositions empirically and discuss the results in section 4. Conclusions are drawn in section 5, where we discuss the theoretical and policy implications of our findings.

2 HRM practices, institutional setting and firm performance

Some forms of HRM emphasise collaboration between employees and employers and others do not (Gooderham et al., 1999). Gooderham et al. (1999: 510) argue that HRM contains an 'inherent duality' between 'strong economic calculative considerations and ….. a more humanistic orientation' and therefore distinguish two types of practice: 'collaborative' and 'calculative', structured by both agency and institutional settings in different countries. The indicators of the two forms that they develop are shown in Figure 1 below:

- Figure 1 about here -

In the spirit of Bowles (1985), Gordon (1994), and Osterman (1994) we view HRM as an instrument designed to enhance the labour extraction process and thus improve firm performance. A convenient analytical tool characterising the labour extraction process is the labour extraction function, which represents the amount of labour supplied per hour of labour hired as a function of the costly inputs used to elicit work from employees.[1] Our first argument is that the labour extraction function should be viewed as endogenously determined by the interaction of institutional environments and firm-specific HRM practices (e.g., Bowles, 1985). Our second argument, pursued in parallel with the first, is that collaborative forms of HRM are more likely to enhance the labour extraction process and bring improved

performance than calculative alternatives (e.g., Levine and D'Andrea Tyson, 1990). Thirdly, as Gooderham et al. (1999) argue, the different forms of HRM are likely to be differentially supported by different institutional frameworks.

There have been many attempts, especially by American authors, to link HRM practices in general and firm performance; we make no attempt to review them all here (for critical reviews, see Guest et al., 2003 and Wright and Haggerty, 2005). Early studies tended to link single HRM practices to outcomes (see, for example, Cutcher-Gershenfeld, 1991). Later studies, inspired by the 'High Performance Work Systems' (HPWS) paradigm identified groups of practices that were linked with superior organisational performance (Huselid, 1995; Becker and Gerhart, 1996; Appelbaum et al, 2000). However, there have also been empirical studies yielding negative results (Cappelli and Neumark, 2001) and the HPWS school of thought has been criticised for failing to recognise that conflicts in the employment relationships are likely to limit HRM effectiveness (Godard, 2004). Godard's (2004) criticism is consistent with that made of the HPWS literature by Wright and Haggerty (2005) who argue that there are missing variables in the discussion (those normally used are typically pay linked to productivity and promotion possibilities). The missing variables are those linked both to employee relations broadly conceived and those relating to collaborative, trust-building practices. We therefore adopt a method that meets these criticisms by testing the links between two types of HRM encapsulating two different employee-employer relations paradigms and firm performance. These variables are particularly relevant in Europe, where employment relationships (even in the UK) are characterised by a relatively strong collective dimension in comparison to the USA (Hall and Gingerich, 2005).

An alternative, less satisfactory, framework for analysing the link between labour use and organisational performance is that of neoclassical efficiency-wage theory. The theory treats workers' motivation as exogenous to the firm and the industrial relations system (note

that employee motivation is assumed to depend solely on the real wage rate, directly affecting the cost of job loss, and the intensity of monitoring). Yet, from the lack of trade-off between wages and monitoring shown in studies of 'high and low trust' national groupings, it follows that employees' motivation must be treated as endogenous to the nature of labour–management relations (Gordon, 1994; Naastepad and Storm, 2006).

There are other aspects of the labour extraction function (which may not be directly driven by HRM practices) that are, by and large, indicators of high-trust relations. A minimum degree of co-operation is a necessary condition of production, but the level of co-operation may be raised if trust is at a high level (Akerlof, 1982). Trust, defined as the supposition by each side that the other will act benevolently, is more fragile and conditional on the perceived solidity of institutional guarantees (Creed and Miles, 1996; Hoff, 2002). Levels of trust may show some consistency across organisations, but are also likely to vary between different work and occupational groups, and employee strata; the difference between different employee strata is reflected in the Gooderham et al. (1999) indicators.

As Buchele and Christiansen (1999, p. 91) argue, continuous improvements in productivity depend not on individual efforts, but on the effective interaction among workers, among work groups or departments (coordination), and between management and workers (cooperation). Baldamus (1961) suggested that effort cannot be measured, and therefore management monitoring of employees had to be subordinated to motivational methods; the extent to which employee ideas of trust were influenced by management were of vital importance to superior company performance. Because no contract can be complete, a degree of control will always remain with employees, necessitating management efforts to build trust, reflected in efforts to influence employees' underlying emotions (Baldamus 1961, p.41).

Akerlof (1982) similarly shows that individuals' productive behaviour is determined by the social definition of the situation adopted by the relevant workers. Akerlof (1982) focuses on the implicit gift-exchange nature of employment arrangements, where exchange is based on reciprocity and trust and relations are endogenously determined.[2] Management has to make constant efforts to influence these norms (MacInnes et al., 1985). Further, employees' willingness to give up the protection offered by rigid work rules, disclose their proprietary (tacit) knowledge, and initiate changes in the production process that raise labour productivity and the firm's capacity for innovation, depends, to a large extent, on management committing to 'high-trust' work practices (Buchele and Christiansen, 1999; Naastepad and Storm, 2006). The (Taylorist) alternative is high levels of employee monitoring, which threaten to undermine trust. The implication is that cooperative and group-based HRM practices with strong implicit gift exchanges will tend to enhance firm performance.

Thus, the calculative-collaborative distinction is useful but should be supplemented to capture high-trust relations in the collaborative form. The Gooderham et al. (1999) framework stresses communications practices in the collaborative form of HRM. While these are revealing of the degree to which employer communications to all grades of employee are viewed as significant by the company, they do not show how far employee views are sought through consultative mechanisms, nor how worker collectives are reinforced by group-payment systems. We therefore incorporate two further indicators: one showing the extent of collective consultative practices and the second the extent of group-payment systems.

Trust is likely to be further built by collective consultative mechanisms that, again allowing for degrees of variation between them, give employees an opportunity for 'voice'. These mechanisms afford a degree of protection to individuals exercising voice. The

collective provides support, encouragement and some protection to individual workers via its capacity to take sanctions against those threatening its members (Brewster et al., 2007).

Finally, group-payment systems in general also tend to increase workers decision-making latitude and to reinforce employee collectives in relation to management. They are therefore viewed negatively by 'calculative' forms of HRM which stress individual rewards for individual effort (Legge, 1995). Group-payment systems are closely associated with teamworking (Tzafrir, 2005). The formal institution of teamwork by management may both reflect and entail different degrees of delegation and therefore trust to the teams, but the very fact of their institution by management requires a certain minimum level of trust (Tzafrir, 2005). Ackroyd and Thompson (1999) and Tzafrir (2005) show that despite considerable variation, high-trust relations between management and employees are associated with team working and especially with its more autonomous forms. While teamwork takes a wide range of forms and also varies greatly in the extent of delegation of decision-taking to employees, group-payment systems invariably underpin the collectives' identity in relation to management (Tzafrir, 2005). We therefore measure the extent of the group-payment systems rather than the existence of teamwork.

Different national institutional frameworks support different approaches to the labour extraction function. The Varieties of Capitalism (VoC) literature has different variants, categorising countries and grouping them by 'variety' (Hall and Soskice, 2001) or 'business system' (Whitley, 1999). In the broadest terms, the USA, Britain and Ireland are invariably put into one category ('compartmentalised' [Whitley, 1999] or 'Liberal Market Economies (LME)' [Hall and Soskice, 2001]) and those of Western Europe into another ('collaborative' [Whitley, 1999] or 'Co-ordinated Market Economies (CME)' [Hall and Soskice, 2001]). The extent to which institutional complementarities within systems help develop high-trust relations at the organisational level is a defining characteristic of national systems (Whitley,

1999; Hall and Soskice, 2001; Amable, 2003). Whitley (1999) places particular emphasis on the importance of co-operation between employers and employees, as demonstrated in the analytical significance of his 'employer-employee interdependence' concept, described as the degree to which both parties are willing to invest in each other. The implication is that where interdependence is encouraged by the systemic institutional context and is relatively well-developed, this will in turn raise levels of mutual investment and efficiency, productivity and quality. Systemic features in the economies categorised by Whitley (1999) as 'collaborative' serve to support the development of high-trust relations, and the converse is also true for his 'compartmentalised' (broadly equivalent to the 'low trust' or LME) category (Harcourt and Wood, 2007).

Let us take one illustrative example of the processes at work, the links between skilled workers and their employers, through the contrast between the German and British situations. Part of the contrast rests on the difference between the two Vocational, Educational and Training (VET) systems. In Germany, VET standards are determined by employers' associations and unions acting under the co-ordination of the state body, the Bundesinstitut für Berufliche Bildung and therefore the employee collectives are recognised as partners. Legislative and union pressures via the rights accorded to works councils also limit the capacity of employers to shed skilled labour in this system. In Britain, VET standards (in the majority of industries) are not determined by such co-operative processes, and skilled workers are less likely to be retained because of the lack of legislative and union pressures to do so. Moreover, short-term financial pressures from stock markets are more likely to exercise an influence over labour shedding in the British case than in the German (Whitley, 1999).

However, national systems do not determine HRM practices. At firm level, systemic options present managements, even in highly co-ordinated systems such as the German, with

considerable room for practices that differ from the clusters of ideal firm types specified by Whitley (Singe and Croucher, 2005). 'High-trust' HRM practices may also be attempted in low trust economies with varying degrees of success (Danford et al., 2005), and may be more supported by legal and institutional arrangements in 'low-trust' economies than sometimes recognised, as UK case studies have indicated (Deakin et al. 2006). On the other hand, perceived breaches of trust by managements in "high-trust" countries (characterized by low monitoring intensity and high real wage growth), may also occur. In these countries, an increase in monitoring intensity, *ceteris paribus*, may cause reduced employees' effort and productivity (Drago and Perlman, 1989; Naastepad and Storm, 2006).

Hypotheses

In summary, our hypotheses about the optimality of HRM practices and their synergies within various institutional settings are as follows:

H1: Collaborative forms of HRM practice are more strongly associated with superior firm performance than calculative forms;

H2: These associations are strongest where national institutional and normative settings support them;

H3: Employer-employee consultative committees and collective payment methods are associated with superior firm performance.

3 Data and variables

In the following sections we econometrically test the hypotheses derived from our theoretical analysis. Data used for the tests are extracted from CRANET, an international survey of HRM practices conducted at regular intervals since 1989. The most senior HRM manager in each firm is asked a comprehensive set of questions about the firm and its HRM practices.

Our data are derived from the 1999/2000 round of surveys, while the study by Gooderham et al. (1999) which we extend uses the previous round of surveys in 1995/1996. Full technical details of the survey are provided in Tregaskis et al. (2004).

Since a central issue in our analysis is the importance of institutional factors and organisational practices for the labour extraction function, and thus for firm performance, we use data from several countries exhibiting diverse institutional settings and diverse HRM practices. Following this line of reasoning we also control for and compare results from samples with and without firms that are foreign subsidiaries.[3] The rationale is that such firms' HRM practices may have been at least influenced by different country-of–origin institutional environments albeit in a complex way as argued by Gooderham et al. (1998).

The main dependent variable in our analysis is firm performance (*perf*) measured as a composite index comprised of five partial measures: service quality, level of productivity, profitability, product to market time, and rate of innovation. Each partial measure is an ordinal categorical variable.[4] We apply Mokken's nonparametric scaling approach to produce our synthetic performance measure (Mokken and Lewis, 1982). The unweighted sum of item scores has to be monotonously related to the latent true scores as demonstrated by Sjitsma et al. (1990). This implies that Mokken's model provides estimates of the scale scores only at ordinal level. As in other studies, the primary scaling criterion is Loevinger's H-coefficient of homogeneity. A set of items constitutes a scale if the total scale has a H-value exceeding 0.30; values above 0.50 indicate strong scales. The details of the items included in the performance scale, results of the scaling procedure, and reliability analysis are reported in Table 1.

- Table 1 about here -

Furthermore, for the impact of work organisation on firm performance Levine and D'Andrea Tyson (1990), amongst others, report that substantial shop floor participation leads

to some combination of an increase in satisfaction, commitment, quality, and productivity, and a reduction in labour turnover and absenteeism. Therefore, we further extend our analysis of performance by relating labour extraction measures: absenteeism (*abse*) and turnover (*turn*) to various factors affecting the extraction function. Low turnover has been shown to have a considerable affect on the effectiveness of HPWSs in generating improved results in the US context (Guthrie et al., 2004). Absenteeism is measured as average days per employee per year. Turnover is the annual staff turnover in percent. Both measures of labour extraction are approximate and are affected by various economic and institutional country-specific factors in addition to the main determinants of the labour extraction function. With this caveat, linking absenteeism and turnover to HRM practices in regressions where major economic and institutional factors are controlled for represents a useful empirical representation of our theoretical framework.

Next, to formulate measures of the HRM practices within firms that approximate aspects of institutional environment at firm level as well, we refer to the strategic HRM model following Gooderham et al. (1999). They identify two types of practices: calculative (*calc*) and collaborative (*coll*) HRM. Subsumed under the former are practices that aim at securing a fit between strategy and human resources, while the latter category captures practices designed to enhance mutuality, consensus and trust.

The calculative approach aims at ensuring that production activities are at all times efficiently (which in this context implies profitably) supplied with the necessary input of human resources (including monitoring personnel). Associated with this model are a range of efficiency-seeking devices aimed at ensuring that each employee's contribution to the firm is assessed and thereafter rewarded accordingly through performance appraisals and individually oriented reward systems. Investment in employee development is also carefully monitored to evaluate its benefits for the business strategy. Importantly, any such calculative

approach is dependent upon the feasibility of treating each employee as an individual rather than as a member of a collective entity protected by collective bargained contracts and unions. Furthermore, if calculative practices are adopted it is reasonable to expect that management will possess substantial autonomy within the firm. Such autonomy will require power not be curtailed by strong regulative pressure at firm level by law and norms nor by influential unions.

The collaborative approach has a distinctly more developmental and humanistic focus often expressed in explicit statements about the value of the employees to the firm. Employees are viewed as active partners and core assets, including in terms of creativity and innovation. The collaborative emphasis is characterised by efforts to create and communicate a culture of partnership between employer and employees as well as among employees. Management attempts to formulate a strategic direction communicated to the firm's employees in the form of mission, goals, or strategy statements via an explicit employee communication policy. Sources of collaborative practices can be found in the support of unions or other collective bodies representing employee interests. Furthermore, the introduction of collaborative practices is highly dependent on the degree of autonomous action enjoyed by HRM departments. A minimum amount of freedom of action is necessary if there is to be sufficient space for a communicative style of operation of the HRM function. Clearly, strong nationally-specific influences will be present.

The two HRM approaches considered characterise, in general, two distinct forms of labour extraction as discussed above although as asserted by Harrison (1993), the two types of practices should not be conceived of as representing two ends of a continuum but should rather be viewed as orthogonal. Gooderham et al. (1999) demonstrate that the two sets of practices may be clearly differentiated in this way whilst acknowledging that elements of both may be present in organisations. A key reason for this, in international terms, is that the

specific management practices are supported or undermined by institutional constraints in different countries, a point that Gooderham and Nordhaug (2003) elaborate in later work. In our empirical analysis we test for the relationship between calculative and collaborative practices and their joint impact on performance.

Next, we extend the Gooderham et al. (1999) HRM typology with a third measure explicitly reflecting the existence of joint consultative committees and group payment systems, which we designate group-based practices (*grpr*). In this index we include features at firm level reflecting the existence of joint employee consultative committees and profit-sharing schemes applied to different segments of the labour force. We expect that the index will capture some aspects of the impact of Akerlof's (1982) implicit gift exchange mechanism on labour extraction and ultimately on firm performance.

To develop measures for HRM practices, we use Mokken's nonparametric latent trial model for unidimensional scaling (Mokken and Lewis, 1982). Thus, we follow the methodology used by Gooderham et al. (1999) which allows us to compare the measures of interest estimated with data from two consecutive rounds of surveys. Mokken's approach does not make overly restrictive assumptions and provides an internal scaling criterion that ensures a unidimensional scale. This is an important advantage in this case where dichotomous items are used and do not satisfy the assumption of interval scale items. Details of the items included in the scales, results of the scaling procedure, and reliability analysis are reported in Table 1.

Besides variables related to HRM practices, the determinants of the labour extraction function - cost of job loss at firm level (*w*) and intensity of monitoring (*s*) – are the main variables in our performance regression specifications. The *w* variable is measured as the percentage of labour cost in the operating costs which when controlled for firm size and external market conditions (see below) would approximate to the potential cost of job loss at

firm level. The *s* variable is measured by the proportion of the firm's employees that are managers. In the Cranet dataset there are three other categories of employees reported: manual, clerical and professional (technical) employees. As Gordon (1994) argues, the proportion of managers in the firm's employment approximates to the intensity of monitoring.

Finally, we control for several other firm characteristics affecting performance. These are log of firm size (*lfsize*), log of firm age (*lfage*), and two qualitative characteristics of the labour force - a dummy variable indicating employees 45 years of age or older (*eage45*) and a dummy variable indicating employees with at least higher education (*eedugr*). Market conditions are controlled for by a three-step ordinal scale (*market*) indicating whether the firm's market is booming, steady or stagnating. Industrial sector information – a set of industry dummy variables - is included in all regression specifications (except the base one). In all regressions a control dummy variable for foreign-subsidiary status of firms is also included. Country dummy variables are used in all extended regression specifications to control for important variations in institutional settings. In selected specifications cross-effects of the country dummies and HRM variables of interest are also included. Summary statistics and short definitions of all regression variables are reported in Table 2.[5]

- Table 2 about here -

4 Estimation results

We estimate three sets of OLS regressions. First, we estimate a set of equations where firm performance is directly linked to the HRM variables of interest while controlling for institutional context and several other important determinants of performance such as firm size and age, qualitative characteristics of the labour force, market conditions, and industry specificity. The results of this analysis are reported in Tables 3a and 3b. We start with a base specification where only variables corresponding to the neoclassical efficiency-wage model

are included. Then we extend the specification by introducing a richer set of controls and HRM practices variables. Second, we consider a direct empirical approximation of the labour extraction function, using two dependent variables, labour force turnover and absenteeism. We extend the specifications in a manner similar to the performance regressions. The results are reported in Table 4a and Table 4b, respectively.[6]

- Table 3a about here -

Tables 3a and 3b contain several significant general findings. The HRM variables have positive and, in general, statistically significant impacts on firm performance. When the HRM variables are interacted with country dummies (Table 3b), thus controlling for the specific link between HRM practices and countries' institutional settings, we find differential effects of the variables of interest on firm performance. Overall, the effect of collaborative practices is positive and significant in countries that fall in the 'high trust' category. The group-based-practices variable significantly impacts performance of firms in both 'low trust' and 'intermediate' categories of countries. In most countries it seems that the different types of HRM practices coexist; however, there usually is one dominant (or more important) type of practice affecting firm performance.

- Table 3b about here -

Thus, the results related to the interaction between HRM practices and country-specific (institutional) conditions are of particular interest. Specifically, Table 3b shows that calculative practices affect performance positively (but not statistically significantly) in most countries analysed, compared to the reference country (the UK). The only country where calculative practices have a negative and statistically significant impact on performance is Denmark. This may be caused by the very specific evolution of Danish industrial relations (Due et al., 1994). Collaborative practices seem to have stronger economic and statistically significant positive impacts on performance in several countries variously categorised in VoC

literature as ‘co-operative’, ‘co-ordinated’ and so on. These are France, Germany, Sweden, Denmark, Belgium and Spain. With respect to group-based practices, UK firms appear to perform well as only firms in France outperform British firms. Group-based practices also have a positive but not statistically significant impact on performance in several other ‘co-operative’ or ‘co-ordinated’ countries.

The results in Table 4a and Table 4b confirm our main findings as the largest impact derives from collaborative and group-based practices. Absenteeism (Table 4a) is lower in firms that employ any of the three types of practices, controlling for industry and country effects. Turnover (Table 4b) is also minimised by applying HRM practices. These results suggest that the labour extraction function is improved by systematic application of HRM practices at firm level. It is evident that collaborative and group-based practices have a stronger impact in both sets of regressions. When the link between HRM practices and country-specific institutions is explored, we again find differential effects across countries and types of practice, in line with the different institutional contexts. These findings confirm our proposition that the labour extraction function should be viewed as endogenously determined by the interaction of the institutional environment and firm-specific HRM practices rather than as simply an exogenous trade-off between wages and monitoring as neoclassical efficiency-wage theory asserts.

- Table 4a about here -

Specifically, in Table 4a, column (4), the interaction terms of collaborative practices measure are negative for all countries and are statistically significant for Germany, Sweden, Denmark, and Austria. This suggests that collaborative practices improve labour extraction in every country. However, the impact is strongest in the four countries mentioned. The relationships depicted by the interaction terms of group-based practices measure are also negative everywhere, implying less absenteeism, except in Spain where the coefficient is

positive but statistically insignificant. Interestingly, the impact of group-based practices on absenteeism is most statistically significant in the Scandinavian countries.

- Table 4b about here -

The results in Table 4b, column (4) where the dependent variable is employee turnover also support the general proposition that both collaborative and group-based HRM practices positively impact the labour extraction process. It is important to note, however, that when the cross effects of calculative practices measure are considered, for several countries (Denmark, Finland, Austria and Belgium) the effects are positive, suggesting that there is more employee turnover in firms that use calculative HRM practices. The results for the cross effects of collaborative practices measure are the opposite and show that the impact on labour extraction is positive (as demonstrated by low turnover) in all countries as the effect is statistically significant in France, Germany, Sweden, Denmark, and Finland. The results for cross effects of group-based practices measure are mixed as the labour extraction function appears to be adversely (high turnover) and statistically significantly affected in Spain and Ireland.

5 Conclusion and discussion

This paper has tested the theoretically derived hypothesis (H1) that collaborative forms of HRM practice are more likely to enhance the labour extraction process and firm performance than calculative alternatives. The proposition was strongly supported in those countries where the institutional setting was most conducive to these organisational level practices (H2), which are essentially related to strong communication with employees. The countries concerned are the strongest versions of the 'Co-ordinated Market Economies' of Western Europe. This supplements and is consistent with other studies' findings in relation to forms of employee voice. Within these CME contexts, different forms of voice are encouraged by

the institutional framework and therefore coexist, mutually reinforcing each other, optimizing employee wages and working conditions, productivity and organizational performance (Hubler and Jirjahn, 2003). In the UK context, inherent tensions between different forms of practice exist, with particularly strong pressures towards individualization and direct forms of expression (Bryson, 2004).

Calculative practices had a weaker impact on the labour extraction function and firm performance. In the case of Denmark, where calculative practices existed, these were negatively associated with performance, absenteeism and turnover. Denmark has an institutional framework providing especially strong support for collaborative practices, and has been categorised as an unambiguously 'Co-ordinated Market Economy' (Hall and Soskice, 2001; Hall and Gingerich, 2005). It is distinctive within the CME category for its high degree of employer-union consensual decision taking, requiring relatively little state intervention for its maintenance (Due et al., 1994; 2000). This suggests that in a country with an especially strong institutional and normative disposition towards collaborative practices, the contrast between calculative practices and these contextual factors is so acute as to generate a counterproductive employee reaction and weaker firm performance.

We also tested the hypothesis (H3) that group-based practices might also generate improved employee-employer relationships and performance. The findings here are more mixed, but confirm and extend contextual analyses such as the analysis of the German case (Addison et al., 2004; Singe and Croucher, 2005). Other strongly collaborative national contexts have been found to give similar results. The mixed nature of findings concerning group-based practices is to be expected given the wide range of contents to be found in these practices. They also interact with other arrangements; their effectiveness is conditional on a wide range of factors, including how they are combined with other complementary approaches such as quality circles (Becker and Gerhart, 1996). Group-based practices were

expected to give positive results in countries where they were strongly supported by the context and again, this was the case. In Sweden, such practices had a strong effect on absenteeism in relation to the UK reference group, possibly because of their content but equally possibly because of the way that they act in line with the particularly strong collaborative institutional framework (Whitley, 1999).

The limitations of this study are firstly that employee attitudes have not been directly tested and secondly that self-reported (subjective) measures of all the indicators are used. In the latter case, it would have been ideal to combine these with more objective measures as recommended by Wall et al. (2004). No international dataset at organisational level currently allows this, but future research could usefully address both of these limitations. In the first case, that of employee attitudes, there is a particular need not only to approach the issue by survey data but also to combine survey data with other data (which might helpfully be observationally-derived) that could demonstrate the mechanisms at work at organisational level.

Nevertheless, our findings have significant policy implications and consequences for political economy. First, they provide underpinning for the 'CME' concept itself, which has been criticised for a lack of differentiation (Allen, 2004), but which in respect of the employment practice-performance link appears to have some justification. On the other hand, this finding has a second consequence for the significance of the Varieties of Capitalism conceptualisation. Central to the 'VoC' formulation in its original form is the argument that particular national institutional configurations cannot be considered 'superior' to others. Rather, it is a question of the 'fit' between labour market practices, the mode of production ('Fordist' or 'flexible specialisation') at organisational level and the requirements of the markets being sold into that determine success in specific markets (Hall and Soskice, 2001). Becker (2007) has criticised the theory, suggesting that practices may be quite different from

those envisaged by Hall and Soskice, but may nevertheless be 'equi-functional'. In this view, LMEs can perform as well as CMEs even in 'flexible specialisation' types of production if companies adopt 'equi-functional' practices. In short, companies operating in LMEs can succeed even in markets demanding high quality where they compensate for a lack of contextual support.

Our findings demonstrate that the CME model is superior in supporting productive efficiency at the organisational level. This is consistent with Panic (2007), who demonstrates that there are no macro-economic performance grounds for 'liberalising' European economies since the Scandinavian economies have performed comparatively well, especially in relation to LMEs. Our evidence supplements his by showing that the ways that CMEs encourage company level communications appear central to raising efficiency. All of this supports the EU policy of attempting to extend industrial communications policies across the EU, including to the LMEs (Britain and Ireland) and the new entrant countries via such measures as the Information and Consultation Directive. It also tends to support an argument that the weak transposition of the Directive into English law is inadequate and unlikely to foster the diffusion of collaborative practices (Hall, 2005).

Our findings are clearly supportive of the European 'social model'. It was noted nearly a decade ago that the benefits of a more collaborative approach were increasingly being framed in economic rather than democratic terms within Europe (Martens, 1999). This tendency has since gathered pace. In the German case, arguably at the centre of the European model, this is reflected in a political consensus that aspects of 'liberalisation' are required (Lane, 2000; 2003). This has been rejected by others (see for example Panic, 2007). At the European level, it has been argued that the European Employment Strategy, now in place for over ten years, threatens to crowd out the EU's more traditional rights-based approach to employment regulation in the name of job creation (Fredman, 2006). It is therefore important

to note that the efficiency benefits of the more collaborative practices encouraged by rights-based approaches that we have shown are inextricably linked to the benefits that employees feel from them (Akerlof, 1982). In short, the emphasis on job creation should not crowd out the traditional emphasis on employment rights that supports the European social model.

Footnotes

1. Neoclassical economic theory points to two types of inputs in the labour extraction function - monitoring cost and higher (efficiency) wages leading to higher expected income losses if an employee is fired. For a formalised application of the labour extraction function to an analysis of implications of HRM practices and the institutional context for firm performance refer to Rizov and Croucher (2007).

2. More specifically, Akerlof's (1982) model posits that monitoring is performed by employee groups. Excess remuneration to some members of the employee group and leniency of work rules constitute the major gifts by the employer to employees. Employees' gift to the employer - effort in excess of formal work standards - is linked to the employer's gift to employees. The key assumption in this mechanism is reciprocity as a major feature of gift exchange, as well as of market exchange. In gift exchanges, however, effort norms are established according to the 'fair day's work' concept rather than by market forces. In return employees expect to be treated fairly by the employer. The concept of fair treatment is not based on absolute standards, but rather, on comparisons of one's own situation with that of other individuals. Individuals use comparison with others as a guide to how they ought to behave or how they ought to be treated.

3. We report here results from the full sample with a control for foreign subsidiary status which does not appear to be statistically significant in any specification. Using Wald tests of differences between coefficients estimated from the full and the restricted sample shows that the coefficients do not differ significantly.

4. We recognise a potential bias in the construction of the dependent variable. The dependent variable is a composite index of five measures, including service quality and innovation. Arguably, it might favour a collaborative view, since service quality and innovation are, theoretically both, when effective, dependent upon collaborative processes. In order to

investigate the issue empirically, we ran regressions with only narrowly defined, and neutral to HRM, measures of performance, specifically, level of productivity and profitability. The results of these regressions are qualitatively very similar to the results reported in the paper suggesting that the formulation of the dependent variable as a composite index does not bias our main findings. The auxiliary regression results are available from the authors upon request.

5. In all regressions we have included as controls for measurement error, due to self-reporting, variables describing important characteristics of individuals that filled out the questionnaires. These individual-level control variables are gender, education, years of service in the organization and we assume that they are not correlated with the firm-level variables.

6. All regressions contain a dummy variable controlling for the foreign-subsidiary status of firms, and individual-reporter controls which were all found not to be statistically significant in any regression and therefore their coefficients were not reported. The stability of coefficients in all regressions when introducing stepwise explanatory variables suggests minimal problems with endogeneity.

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Figure 1 Calculative and Collaborative HRM practices

Calculative: **Individual and formal**	**Collaborative:** **Mission, briefings, communication**
Individual performance appraisals for managers	Written ***mission*** statement
Individual performance appraisals for professional/technical staff	Formal ***briefings*** about company strategy for managers
Individual performance appraisals for clerical staff	Formal ***briefings*** about company strategy for professional/technical staff
Individual performance appraisals for manual staff	Formal ***briefings*** about company strategy for clerical staff
Individual reward systems (merit pay and performance related pay) for managers	Formal ***briefings*** about company strategy for manual staff
Individual reward systems (merit pay and performance related pay) for professional/technical staff	Written ***communication*** policy with employees
Individual reward systems (merit pay and performance related pay) for clerical staff	
Individual reward systems (merit pay and performance related pay) for manual staff	
Formal evaluation of personnel training immediately after training	
Formal evaluation of training some months later	

Table 1 Performance and HRM practices scales

Scale/Variable	MSP		Alpha
	Mean	H	
Performance scale (*perf*)	-	0.45	0.76
Profitability between 3 and 1 (high-low)	2.13	0.43	0.71
Productivity between 3 and 1 (high-low)	2.21	0.49	0.69
Service quality between 3 and 1 (high-low)	2.45	0.44	0.74
Product to market between 3 and 1 (high-low)	2.06	0.50	0.68
Innovation between 3 and 1 (high-low)	2.10	0.40	0.73
Calculative scale (*calc*)	-	0.64	0.71
Individual rewards: manual	0.15	0.84	0.69
Individual rewards: clerical	0.28	0.87	0.68
Individual rewards: professionals	0.41	0.87	0.69
Individual rewards: managers	0.66	0.82	0.71
Performance appraisal: manual	0.47	0.46	0.68
Performance appraisal: clerical	0.60	0.62	0.65
Performance appraisal: professionals	0.65	0.66	0.65
Performance appraisal: managers	0.67	0.56	0.67
Formal evaluation: immediate	0.52	0.36	0.70
Formal evaluation: later	0.32	0.43	0.71
Collaborative scale (*coll*)	-	0.63	0.70
Strategy briefings: manual	0.36	0.88	0.57
Strategy briefings: clerical	0.47	0.84	0.54
Strategy briefings: professionals	0.62	0.76	0.59
Strategy briefings: managers	0.96	0.67	0.71
Written mission statement	0.80	0.36	0.71
Communication policy	0.77	0.30	0.73
Group-practices scale (*grpr*)	-	0.57	0.71
Joint consultative committee	0.56	0.30	0.75
Employee share options: manual	0.15	0.56	0.68
Employee share options: clerical	0.16	0.53	0.68
Employee share options: professionals	0.19	0.49	0.68
Profit sharing: manual	0.20	0.58	0.66
Profit sharing: clerical	0.24	0.63	0.66
Profit sharing: professionals	0.29	0.65	0.66
Group bonus: manual	0.21	0.61	0.70
Group bonus: clerical	0.20	0.66	0.69
Group bonus: professionals	0.21	0.68	0.69

Notes: MSP denotes Mokken Scaling Program. H is Loevinger's coefficient of homogeneity (weighted); all H-coefficients are significantly different from zero at the 0.001 level. Alpha is Cronbach's alpha measure of reliability.

Table 2 Summary statistics of regression variables

Variable	Description	Mean	S.d.
perf	Performance composite index ranging between 5 and 15 (low-high)	10.97	2.30
absc	Average number of days of absence per employee per year	7.95	6.52
turn	Employee turnover at firm level in percent per year	8.24	10.58
w	Percentage of labour cost in total operating cost	38.98	21.36
s	Ratio of managers to employees in percent	9.10	9.20
lfsize	Log of firm size (total labour force)	6.05	1.20
lfage	Log of firm age (years)	3.66	0.91
eage45	Percentage of labour force 45 years of age or older	32.87	18.76
eedugr	Percentage of labour force with graduate or post-graduate education	23.11	16.77
market	Index of market conditions and business cycle development ranging between 1 and 3 (recession-expansion)	1.61	0.70
calc	Calculative HRM composite index ranging between 0 and 10	4.65	2.23
coll	Collaborative HRM composite index ranging between 0 and 6	3.97	1.62
grpr	Group-based HRM composite index ranging between 0 and 10	4.24	2.05
Manufacturing	Manufacturing industries dummy variable	0.50	0.79
Construction	Construction industries dummy variable	0.04	0.20
Transportation	Transportation industries dummy variable	0.06	0.24
Bank and finance	Banking and finance services industries dummy variable	0.09	0.29
Personal services	Personal services industries dummy variable	0.01	0.11
Other industries	Other industries dummy variable	0.30	0.46
Foreign subsidiary	Dummy variable which is 1 if the firm is a foreign subsidiary and 0 otherwise	0.30	0.46
UK	UK dummy variable	0.14	0.34
France	France dummy variable	0.08	0.26
Germany	Germany dummy variable	0.15	0.35
Sweden	Sweden dummy variable	0.04	0.21
Spain	Spain dummy variable	0.06	0.23
Denmark	Denmark dummy variable	0.08	0.27
Norway	Norway dummy variable	0.13	0.34
Ireland	Ireland dummy variable	0.11	0.31
Finland	Finland dummy variable	0.11	0.31
Austria	Austria dummy variable	0.05	0.23
Belgium	Belgium dummy variable	0.05	0.22

Note: Number of observations used in calculating summary statistics is 1045 except for *absc* and *turn* where number of observations is 779 and 965, respectively.

Table 3a Regression analysis of firm performance

Variable	(1)	(2)	(3)	(4)
w	**-0.019 (0.003)**	**-0.018 (0.004)**	**-0.017 (0.004)**	**-0.015 (0.004)**
s	0.006 (0.008)	0.006 (0.009)	0.006 (0.009)	0.007 (0.009)
lfsize	0.025 (0.059)	0.077 (0.064)	0.0049 (0.064)	0.016 (0.065)
lfage	**-0.204 (0.082)**	**-0.167 (0.084)**	**-0.153 (0.084)**	**-0.155 (0.084)**
eage45	-0.004 (0.004)	-0.003 (0.004)	-0.003 (0.004)	-0.003 (0.004)
eedugr	0.004 (0.003)	**0.006 (0.003)**	**0.005 (0.003)**	0.004 (0.003)
market	**0.182 (0.102)**	**0.206 (0.103)**	**0.202 (0.103)**	**0.194 (0.102)**
calc	-	-	**0.063 (0.032)**	**0.056 (0.032)**
coll	-	-	**0.075 (0.045)**	0.066 (0.047)
grpr	-	-	-	**0.102 (0.039)**
Construction	-	0.329 (0.361)	0.402 (0.361)	0.445 (0.360)
Transportation	-	-0.187 (0.309)	-0.129 (0.361)	-0.080 (0.308)
Bank and finance	-	-0.229 (0.274)	-0.261 (0.273)	-0.249 (0.272)
Personal services	-	0.455 (0.632)	0.427 (0.631)	0.436 (0.629)
Other industries	-	**-0.300 (0.182)**	-0.278 (0.182)	-0.202 (0.184)
France	-	**-0.709 (0.360)**	**-0.635 (0.328)**	**-0.727 (0.338)**
Germany	-	0.297 (0.272)	0.145 (0.277)	0.077 (0.277)
Sweden	-	-0.500 (0.380)	-0.581 (0.380)	-0.526 (0.379)
Spain	-	-0.260 (0.353)	-0.158 (0.355)	-0.188 (0.357)
Denmark	-	0.014 (0.322)	0.075 (0.324)	0.167 (0.325)
Norway	-	-0.134 (0.279)	-0.020 (0.285)	-0.041 (0.285)
Ireland	-	0.023 (0.302)	0.087 (0.302)	0.158 (0.302)
Finland	-	-0.001 (0.289)	0.036 (0.302)	0.063 (0.302)
Austria	-	**0.802 (0.355)**	**0.885 (0.356)**	**0.943 (0.355)**
Belgium	-	0.315 (0.364)	0.281 (0.363)	0.355 (0.364)
Control for subsidiary	Yes	Yes	Yes	Yes
Controls for reporter	Yes	Yes	Yes	Yes
$\overline{R}^2$	0.24	0.28	0.32	0.35
Number observations	1045	1045	1045	1045

Note: In the table each column shows coefficients and standard errors in parenthesis. Coefficients in bold denote significance at 10% level or better. Reference country is the UK and reference industry is manufacturing.

Table 3b Regression analysis of firm performance: cross effects

Variable	(5)	(6)
w	**-0.017 (0.004)**	**-0.015 (0.004)**
s	0.005 (0.009)	0.004 (0.009)
lfsize	0.057 (0.065)	0.047 (0.066)
lfage	**-0.172 (0.085)**	**-0.168 (0.085)**
eage45	-0.003 (0.004)	-0.002 (0.004)
eedugr	**0.005 (0.003)**	0.004 (0.003)
market	**0.198 (0.104)**	**0.199 (0.104)**
calc	0.032 (0.084)	0.032 (0.084)
coll	0.030 (0.118)	0.040 (0.118)
grpr	-	**0.111 (0.059)**
France	-1.540 (1.036)	-1.415 (1.127)
Germany	0.981 (0.781)	1.063 (0.824)
Sweden	-0.968 (0.631)	-1.046 (0.853)
Spain	-1.280 (1.080)	**-1.841 (1.117)**
Denmark	-0.969 (0.992)	-0.711 (0.914)
Norway	-0.796 (0.844)	-0.773 (0.862)
Ireland	0.576 (0.926)	0.796 (0.940)
Finland	0.199 (0.994)	0.183 (0.901)
Austria	0.610 (0.892)	0.482 (0.588)
Belgium	-0.693 (0.452)	-0.572 (0.413)
France*calc	0.031 (0.134)	0.036 (0.138)
Germany*calc	0.166 (0.122)	0.163 (0.122)
Sweden*calc	0.190 (0.189)	0.200 (0.188)
Spain*calc	0.133 (0.176)	0.167 (0.178)
Denmark*calc	**-0.410 (0.137)**	**-0.314 (0.143)**
Norway*calc	-0.046 (0.117)	-0.052 (0.119)
Ireland*calc	-0.093 (0.129)	-0.099 (0.130)
Finland*calc	0.018 (0.126)	0.010 (0.126)
Austria*calc	0.062 (0.156)	0.074 (0.155)
Belgium*calc	0.096 (0.162)	0.064 (0.170)
France*coll	**0.291 (0.129)**	**0.322 (0.159)**
Germany*coll	**0.201 (0.133)**	**0.203 (0.132)**
Sweden*coll	**0.146 (0.083)**	**0.130 (0.083)**
Spain*coll	**0.380 (0.224)**	**0.373 (0.223)**
Denmark*coll	**0.272 (0.155)**	**0.269 (0.154)**
Norway*coll	0.172 (0.174)	0.154 (0.175)
Ireland*coll	-0.027 (0.180)	-0.034 (0.184)
Finland*coll	-0.051 (0.193)	-0.072 (0.194)
Austria*coll	0.042 (0.158)	-0.037 (0.157)
Belgium*coll	**0.334 (0.201)**	0.328 (0.206)
France*grpr	-	**0.226 (0.135)**
Germany*grpr	-	0.081 (0.136)
Sweden*grpr	-	-0.012 (0.165)
Spain*grpr	-	0.289 (0.225)
Denmark*grpr	-	-0.196 (0.219)
Norway*grpr	-	-0.126 (0.129)
Ireland*grpr	-	-0.035 (0.131)

Finland*grpr	-	0.061 (0.126)
Austria*grpr	-	0.133 (0.148)
Belgium*grpr	-	0.088 (0.132)
Control for subsidiary	Yes	Yes
Controls for reporter	Yes	Yes
$\overline{R}^2$	0.39	0.43
Number observations	1045	1045

Note: In the table each column shows coefficients and standard errors in parenthesis. Coefficients in bold denote significance at 10% level or better. Industry dummies are included in all regressions but results are not reported. Reference country is the UK and reference industry is manufacturing.

Table 4a Analysis of labour extraction function: absenteeism

Variable	(1)	(2)	(3)	(4)
w	0.009 (0.012)	0.008 (0.012)	0.006 (0.012)	0.007 (0.013)
s	-0.035 (0.027)	**-0.056 (0.029)**	**-0.054 (0.029)**	**-0.058 (0.030)**
lfsize	**0.423 (0.194)**	**0.370 (0.204)**	**0.458 (0.211)**	**0.402 (0.214)**
lfage	-0.029 (0.265)	-0.218 (0.268)	-0.195 (0.269)	-0.123 (0.274)
eage45	**0.039 (0.012)**	**0.039 (0.012)**	**0.040 (0.013)**	**0.036 (0.013)**
eedugr	**-0.030 (0.009)**	**-0.025 (0.009)**	**-0.024 (0.009)**	**-0.023 (0.009)**
market	-0.234 (0.340)	-0.133 (0.336)	-0.094 (0.337)	-0.111 (0.342)
calc	-	-	-0.042 (0.104)	-0.027 (0.253)
coll	-	-	**-0.172 (0.103)**	-0.114 (0.360)
grpr	-	-	**-0.200 (0.108)**	-0.068 (0.242)
France	-	**3.159 (1.048)**	**3.354 (1.100)**	**4.583 (2.801)**
Germany	-	**2.262 (0.821)**	**2.022 (0.842)**	3.341 (2.569)
Sweden	-	**6.043 (1.354)**	**6.037 (1.358)**	6.308 (4.023)
Spain	-	**2.374 (1.098)**	**1.983 (1.120)**	3.820 (2.507)
Denmark	-	**-1.842 (1.074)**	**-1.914 (1.093)**	-1.835 (1.330)
Norway	-	**3.046 (0.846)**	**3.028 (0.877)**	2.377 (2.669)
Ireland	-	0.251 (0.969)	0.116 (0.981)	0.695 (1.118)
Finland	-	-1.335 (0.928)	-1.186 (0.950)	-2.396 (2.339)
Austria	-	**2.683 (1.114)**	**2.502 (1.118)**	**4.926 (2.181)**
Belgium	-	0.060 (0.203)	-0.020 (0.205)	1.440 (2.064)
France*calc	-	-	-	-0.478 (0.430)
Germany*calc	-	-	-	-0.030 (0.077)
Sweden*calc	-	-	-	1.111 (0.780)
Spain*calc	-	-	-	-0.695 (0.562)
Denmark*calc	-	-	-	0.224 (0.477)
Norway*calc	-	-	-	0.191 (0.358)
Ireland*calc	-	-	-	0.095 (0.212)
Finland*calc	-	-	-	0.523 (0.407)
Austria*calc	-	-	-	-0.206 (0.511)
Belgium*calc	-	-	-	-0.080 (0.525)
France*coll	-	-	-	-0.014 (0.087)
Germany*coll	-	-	-	**-0.397 (0.218)**
Sweden*coll	-	-	-	**-1.153 (0.703)**
Spain*coll	-	-	-	0.092 (0.590)
Denmark*coll	-	-	-	**-0.270 (0.137)**
Norway*coll	-	-	-	-0.739 (0.532)
Ireland*coll	-	-	-	-0.260 (0.412)
Finland*coll	-	-	-	-0.326 (0.324)
Austria*coll	-	-	-	**-1.326 (0.705)**
Belgium*coll	-	-	-	-0.253 (0.347)
France*grpr	-	-	-	-0.116 (0.099)
Germany*grpr	-	-	-	-0.056 (0.117)
Sweden*grpr	-	-	-	**-2.146 (0.572)**
Spain*grpr	-	-	-	0.351 (0.837)
Denmark*grpr	-	-	-	**-0.141 (0.076)**
Norway*grpr	-	-	-	**-0.372 (0.210)**
Ireland*grpr	-	-	-	-0.002 (0.159)

Finland*grpr	-	-	-	**-0.585 (0.349)**
Austria*grpr	-	-	-	-0.174 (0.186)
Belgium*grpr	-	-	-	-0.034 (0.074)
Control for subsidiary	Yes	Yes	Yes	Yes
$\overline{R}^2$	0.23	0.30	0.34	0.41
Number observations	779	779	779	779

Note: In the table each column shows coefficients and standard errors in parenthesis. Coefficients in bold denote significance at 10% level or better. Industry dummies are included in all regressions but results are not reported. Reference country is the UK and reference industry is manufacturing.

Table 4b Analysis of labour extraction function: turnover

Variable	(1)	(2)	(3)	(4)
w	**0.032 (0.016)**	0.016 (0.017)	0.016 (0.017)	0.016 (0.017)
s	**0.095 (0.040)**	0.045 (0.044)	0.036 (0.044)	0.050 (0.045)
lfsize	**0.432 (0.255)**	0.264 (0.290)	0.295 (0.300)	0.296 (0.302)
lfage	**-1.505 (0.378)**	**-1.098 (0.379)**	**-0.996 (0.380)**	**-0.919 (0.385)**
eage45	**-0.075 (0.018)**	**-0.080 (0.018)**	**-0.076 (0.018)**	**-0.082 (0.018)**
eedugr	-0.019 (0.012)	**-0.027 (0.012)**	**-0.027 (0.013)**	**-0.028 (0.013)**
market	0.766 (0.482)	0.698 (0.472)	0.718 (0.473)	0.651 (0.479)
calc	-	-	-0.128 (0.094)	-0.138 (0.386)
coll	-	-	**-0.394 (0.151)**	-0.658 (0.536)
grpr	-	-	**-0.315 (0.183)**	**-0.622 (0.364)**
France	-	**-7.178 (1.484)**	**-6.780 (1.542)**	-2.209 (3.394)
Germany	-	**-8.239 (1.227)**	**-8.133 (1.252)**	**-9.006 (3.808)**
Sweden	-	**-8.064 (1.700)**	**-8.342 (1.703)**	-8.996 (7.491)
Spain	-	**-5.269 (1.672)**	**-5.639 (1.697)**	-2.591 (3.609)
Denmark	-	**-3.951 (1.495)**	**-3.656 (1.518)**	**-6.549 (3.952)**
Norway	-	**-6.720 (1.244)**	**-6.139 (1.278)**	**-8.298 (3.927)**
Ireland	-	**-5.879 (1.380)**	**-5.785 (1.390)**	**-8.737 (4.318)**
Finland	-	**-7.712 (1.358)**	**-7.323 (1.377)**	-6.735 (4.719)
Austria	-	**-7.847 (1.628)**	**-7.393 (1.634)**	**-9.596 (5.145)**
Belgium	-	**-7.558 (1.629)**	**-7.899 (1.630)**	**-9.689 (5.131)**
France*calc	-	-	-	-0.570 (0.640)
Germany*calc	-	-	-	0.7757 (0.560)
Sweden*calc	-	-	-	0.537 (0.836)
Spain*calc	-	-	-	-0.839 (0.885)
Denmark*calc	-	-	-	**1.182 (0.661)**
Norway*calc	-	-	-	0.248 (0.539)
Ireland*calc	-	-	-	0.862 (0.604)
Finland*calc	-	-	-	**1.488 (0.590)**
Austria*calc	-	-	-	**0.813 (0.424)**
Belgium*calc	-	-	-	**0.773 (0.355)**
France*coll	-	-	-	**-1.790 (0.938)**
Germany*coll	-	-	-	**-0.824 (0.497)**
Sweden*coll	-	-	-	**-0.732 (0.442)**
Spain*coll	-	-	-	-1.921 (1.233)
Denmark*coll	-	-	-	**-1.277 (0.729)**
Norway*coll	-	-	-	-0.157 (0.591)
Ireland*coll	-	-	-	-0.999 (0.855)
Finland*coll	-	-	-	**-1.618 (0.904)**
Austria*coll	-	-	-	-0.638 (1.205)
Belgium*coll	-	-	-	-0.351 (0.974)
France*grpr	-	-	-	-0.280 (0.733)
Germany*grpr	-	-	-	-0.041 (0.420)
Sweden*grpr	-	-	-	0.258 (0.745)
Spain*grpr	-	-	-	**1.712 (1.008)**
Denmark*grpr	-	-	-	-1.429 (1.090)
Norway*grpr	-	-	-	-0.215 (0.664)
Ireland*grpr	-	-	-	**1.234 (0.622)**

Finland*grpr	-	-	-	-0.138 (0.595)
Austria*grpr	-	-	-	0.366 (0.858)
Belgium*grpr	-	-	-	-0.250 (1.013)
Control for subsidiary	Yes	Yes	Yes	Yes
$\overline{R}^2$	0.25	0.32	0.36	0.42
Number observations	965	965	965	965

Note: In the table each column shows coefficients and standard errors in parenthesis. Coefficients in bold denote significance at 10% level or better. Industry dummies are included in all regressions but results are not reported. Reference country is the UK and reference industry is manufacturing.